

Appln No. 09/724,200

Amdt date August 11, 2003

Reply to Office action of March 12, 2003

**REMARKS/ARGUMENTS**

Claims 2-4, 6-10, 12-14 and 16-26 remain in the present application, of which claims 2, 6, 12, 16 and 26 are independent. Claims 6-7, 13, and 16-17 have been amended herein. New claims 21-26 have been added. Applicants respectfully request reconsideration and allowance of claims 2-4, 6-10, 12-14 and 16-20. In addition, applicants respectfully request consideration on the merits and allowance of newly added claims 21-26.

In the Final Office Action mailed March 12, 2003, the Examiner has rejected claims 2-4, 6-10, 12-14 and 16-20 under 35 U.S.C. § 103(a) as allegedly being obvious over U.S. Patent No. 5,308,917 ("Kitamura et al.).

In the touch control apparatus according to an exemplary embodiment of the present invention, "only one hit with a force, which the user considers as the maximum keying power, enables the velocity value forming the touch curve to be increased in accordance with the keying power of the user. Thus, a large sound volume can be produced with a weak keying power. In this way, the user can adjust the electronic instrument so as to obtain a desirable touch response by using an easy operation in a short time." (page 26, lines 17-26 of the specification).

Such capability to correct the touch curve using only one hit with a force is made possible through use of a novel and unobvious generation of a correction coefficient and its multiplication to the existing correction curve.

Kitamura et al. appears to teach against such generation of maximum touch data indicative of the maximum keying power or its

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use to change the touch curve using an easy operation in a short time. In fact, Kitamura et al. discloses that, to make changes to a touch curve, "depression pressure (touch) values *p* in units of strengths in association with at least three setting points, i.e., low-touch (*piano*), middle-touch (*mezzo forte*), and high-touch (*forte*) setting points" Col. 2, lines 53-57) are detected. Moreover, "when the depression pressure is detected, the keyboard is depressed a plurality of number of times . . . the player performs keyboard operations for touch detection while recognizing the tone level corresponding to the touch strength according to his or her feeling." (Col. 2, lines 57-66). Hence, Kitamura et al., in addition to requiring the player to hit the key a number of times (also, see FIGs. 5-7), also appears to assume that the players are able to recognize the differences between *piano*, *mezzo forte* and *forte* in their keystrokes, which certainly would be very difficult for beginners.

These precisely are some of the problems in the prior art that are addressed by one exemplary embodiment of the present invention. For example, the specification of the present application recites, in a relevant portion, "the second and third prior arts require the touch data in the case of the keying powers through the different forces such as the weak, middle and strong keying powers. However, it is difficult that the beginners know what degree of keying power leads to the weak hitting, the middle hitting or the strong hitting. Thus, it is difficult to obtain the desirable touch curve." (page 5, lines 20-27). In order to address these and other problems associated with prior art, in an exemplary embodiment of the present

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invention, the player is allowed to change the touch curve simply by hitting the key once using a maximum strength stroke, which virtually anyone should be able to do. From the maximum strength stroke, a correction coefficient is generated, and it is multiplied to the existing correction curve to generate a new correction curve.

Claim 2 recites, in a relevant portion, "[a] touch control apparatus comprising . . . a correction coefficient generator which generates a correction coefficient composed of a ratio of one of said velocity values corresponding to one of said touch data generated by said keyboard device under said predetermined operation mode to a maximum value of said velocity values; and a touch curve generator which multiplies said correction coefficient generated by said correction coefficient generator by said velocity values to generate the new touch curve." Since Kitamura et al. does not teach or suggest such touch control apparatus, it is submitted that applicants have claimed a novel and unobvious invention. Therefore, it is respectfully requested that the rejection of claim 2 be withdrawn and that it be allowed.

Since claims 3, 4 and 21-25 depend, directly or indirectly, from claim 2, they incorporate all the terms and limitations of claim 2 in addition to other limitations, which together further patentably distinguish them over the cited references. Therefore, applicants respectfully request that the rejection of claims 3 and 4 be withdrawn and that they be allowed. Further, applicants respectfully request that claims 21-25 be allowed.

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Claim 12 recites, in a relevant portion, "[a] touch control method comprising . . . generating a correction coefficient composed of a ratio of one of said velocity values corresponding to one of said touch data generated in said touch curve generating step under said predetermined operation mode to a maximum value of said velocity values; and multiplying said correction coefficient generated in said correction coefficient generating step by said velocity values to generate the new touch curve." Since Kitamura et al. does not teach or suggest such touch control method, it is submitted that applicants have claimed a novel and unobvious invention. Therefore, it is requested that the rejection of claim 12 be withdrawn and that it be allowed.

Since claims 13 and 14 depend, directly or indirectly, from claim 12, they incorporate all the terms and limitations of claim 12 in addition to other limitations, which together further patentably distinguish them over the cited references. Therefore, applicants respectfully request that the rejection of claims 13 and 14 be withdrawn and that they be allowed.

In the touch control apparatus according to another exemplary embodiment of the present invention, a correction curve that can be adjusted by a user is provided in addition to a keyboard curve. The key push speed outputted from a touch sensor contained in a keyboard device is different between a white key and a black key. Also, the key push speed is varied depending on the kind of the keyboard device. When the key is pushed under the predetermined force, a touch data is corrected such that a predetermined value is outputted irrespectively of

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the difference between the white key and the black key and the kind of the keyboard device. The keyboard curve defines the relation between this corrected touch data and the velocity value. In this embodiment, the touch control apparatus outputs a correction value obtained by further correcting the keyboard curve in accordance with a correction curve as a final velocity value. (e.g., page 28, line 24 through page 29, line 22).

The Examiner has rejected claims 6 and 16 apparently without citing any portions of Kitamura et al. that are relevant to specific limitations thereof. Further, applicants have not found any teaching or suggestion in Kitamura et al. of applying a correction curve on a keyboard curve to correct the keyboard curve. For example, Kitamura et al. appears to disclose a touch curve that is manipulated through interpolation, and not using a correction curve. Hence, Kitamura et al. does not appear to disclose a corrector that corrects a correction curve stored in a correction curve memory when a correction value corresponding to touch data generated by a keyboard device is different from a predetermined standard value, such that the correction value becomes the predetermined standard value.

Claim 6 recites, in a relevant portion, "[a] touch control apparatus comprising . . . a correction curve memory which stores a correction curve indicative of correction values to correct a keyboard curve indicative of a correspondence relation of velocity and touch data, said correction values corresponding to said touch data generated by said keyboard device; a corrector which corrects the correction values stored in said correction curve memory based on said touch data generated by

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said keyboard device to generate a new correction curve . . . wherein said corrector, when a correction value corresponding to said touch data generated by said keyboard device under said predetermined operation mode is different from a predetermined standard value, corrects said correction curve stored in said correction curve memory such that said correction value becomes the predetermined standard value." Since Kitamura et al. does not teach or suggest such touch control apparatus, a novel and unobvious invention is claimed. Therefore, it is requested that the rejection of claim 6 be withdrawn and that it be allowed.

Since claims 7-10 depend, directly or indirectly, from claim 6, they incorporate all the terms and limitations of claim 6 in addition to other limitations, which together further patentably distinguish them over the cited references. Therefore, applicants respectfully request that the rejection of claims 7-10 be withdrawn and that they be allowed.

Claim 16 recites, in a relevant portion, "[a] touch control method comprising . . . storing a correction curve indicative of correction values to correct a keyboard curve indicative of a correspondence relation of velocity and touch data, . . . correcting said stored correction values based on said generated touch data to generate a new correction curve; . . . when a correction value corresponding to said touch data generated under said predetermined operation mode is different from a predetermined standard value, corrects said stored correction curve such that said correction value becomes the predetermined standard value." Since Kitamura et al. does not teach or suggest such touch control method, a novel and unobvious

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invention is claimed. Therefore, it is requested that the rejection of claim 16 be withdrawn and that it be allowed.

Since claims 17-20 depend, directly or indirectly, from claim 16, they incorporate all the terms and limitations of claim 16 in addition to other limitations, which together further patentably distinguish them over the cited references. Therefore, applicants respectfully request that the rejection of claims 17-20 be withdrawn and that they be allowed.

Claim 26 recites, in a relevant portion, "A touch control apparatus comprising . . . a correction curve memory which stores a correction curve indicative of correction values to correct a keyboard curve indicative of a correspondence relation of velocity and touch data, said correction values corresponding to said touch data generated by said keyboard device, wherein the correction curve is generated through pushing at least one of the plurality of keys using a single keying power." Since none of the cited references teaches or suggests such touch control apparatus, a novel and unobvious invention is claimed. Therefore, it is requested that claim 26 be allowed.

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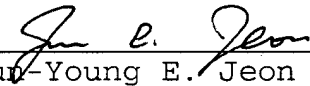
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In view of the foregoing amendments and remarks, applicants respectfully request allowance of claims 2-4, 6-10, 12-14 and 16-26 and an early issuance of a patent. Applicants respectfully request a telephone interview to discuss this amendment prior to further examination of the present application.

Respectfully submitted,

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